L 29122-65

ACCESSION NR: AP5005704

ASSOCIATION: none

SUBMITTED: 090ct63 ENCL: 00 SUB CODE: MA

NO REF SOV: 003 OTHER: 000

Card 2/2

SOFRONOV, Yevgeniy Valerianovich; IVANOV, S.M., red.

[Equipment of an airplane] Oborudovanie samoleta. Moskva, Znanie, 1965. 47 p. (Novoe v zhizni, nauke, tekhnike. IV Seriia: Tekhnika, no.9) (MIRA 18:4)

S/112/60/000/05/06/023

Translation from: Referativnyy zhurnal. Elektrotekhnika. 1960, No. 5, pp. 290-291, # 4.4072

AUTHOR: Sofronov, Yu. D.

TITLE: An Electrotechnical Method of Metal Testing

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, Vol. 41, pp. 61-73

TEXT: The author investigates a method of testing flat metal specimens (1-4 x 10-40 x 100-200 mm) by way of determining the resonance length of the specimen fastened as a cantilever beam at oscillations excited by an electromagnet (cross-section of the core = 20 x 30 mm, required power = 40 W), supplied with commercial AC of 50 cps. In the device recommended for the tests, the free length (l) of the specimen can be varied by readjusting the fastening and is measured with a nonius-equipped ruler, while the resonance point is determined visually or by ear by the abrupt rise of the oscillation amplitude. The modulus of elasticity (E) of the specimen is determined by the formula

$$E = \frac{Bl^4}{h^2 g} N^2,$$

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where N = oscillation frequency (at f = 50 cps N = 100), h = thickness of the specimen, = specific gravity of material, g = gravity acceleration, B = the coefficient depending on the fastening method of the specimen. The accuracy of the method amounts to 1-1.5%. A similar device is suggested for metal fatigue tests. A specially shaped plate made of the material to be tested is fastened in such a way that the free and possesses the resonance length which is oscillated by an electromagnet. When fatigue cracks appear, the oscillation amplitude decreases rather abruptly and this determines the termination of the test. The number of cycles is calculated by the formula n = 6000 t, where n = number of cycles, t = test period in minutes. There are 10 figures, 7 references.

P. G. Ya.

28(5) SOV/32-25-4-37/71

AUTHOR: Sofronov, Yu. D.

TITLE: Determining the Elasticity Modulus E by the Electrotechnical Method (Opredeleniye modulya uprugosti E elektrotekhnicheskim metodom)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 4, pp 472-474 (USSR)

ABSTRACT: This paper was lectured at the Scientific Conference in the Kazanskiy aviatsionnyy institut (Kazan' Aviation Institute) in 1950. The application of the radiotechnical method (Ref 2) of determining elastic constants requires a complicated radio apparatus. In the present case, the construction was simplified, and an alternating current was used for exciting the sample oscillations. The testing methods were slightly changed as the resonance is attained by a change of the free sample length. The sample is fixed in a special electrotechnical device (Figure), and the resonance moment is determined by the maximum oscillation amplitude as mentioned above. The elasticity constants E and G can then be computed by an equation (1). This electrotechnical method enables determinations of the elasticity constants with an accuracy of 1-1.6%. In the present case, two

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devices were developed for tests of this kind where rectangular samples with constant cross sections can be tested. The sketch of one of the devices shows that the oscillations are produced by an electromagnet which is fed by alternating current. The second device was made according to a scheme (Ref 4). But practice showed that better results are obtained with the first device. There are 1 figure and 5 Soviet references.

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan' Aviation Institute)

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27528
S/123/61/000/014/001/045
A004/A101

AUTHOR: Sofronov, Yu. D.

TITLE: On the problem of static fatigue of metals

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 14, 1961, 13, abstract 14A88 ("Tr. Kazansk. aviats. in-ta", 1959, v. 46, 121-132)

TEXT: Specimens 6 mm in diameter and 18 mm long from the steel grades ЭИ-415 (EI-415), 40ХНМА (40KhNMA), 30ХГСА (30KhGSA), 45 and 15, and from copper and brass were subjected to repeated static tension and compression and to repeated tension at a given load up to destruction. Based on the results of these tests the author investigated the mechanism of the process of static fatigue - fatigue failure at low loading rates. The tests confirmed the hypothesis on the accumulation of residual deformations and the assumptions on the equality of breaking points at static fatigue and single tension. It was found that materials (e.g. brass) having a compression curve which is lower than the tension curve cannot be destroyed by static fatigue if the loading cycle is symmetrical. It was established that, for a cycle with the given deformation, static fatigue

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A004/A101

On the problem of static fatigue of metals

failures cannot occur, but ordinary fatigue failure is observed. The author suggests to carry out static fatigue calculations by a method which is analogous to the calculation of creep. There are 5 references.

A. Usov

[Abstracter's note: Complete translation]

Card 2/2

42746

S/124/62/000/011/016/017
D234/D308

107400

AUTHOR: Sofronov, Yu. D.

TITLE: Variation of natural vibration frequency in repeated loading

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 11, 1962, 31, abstract 11V255 (Tr. Kazansk. aviats. in-ta, 1961, no. 62, 99-108)

TEXT: Measurement of natural vibration frequency makes it possible to observe processes taking place in metal during repeated loading. It is assumed that 1) before a fatigue crack is formed, the variation of natural vibration frequency is explained by destruction of a part of metal grains and decrease of sample rigidity caused by it, 2) with the formation and development of a fatigue crack, variation of frequency due to decrease of cross-section of fatigue crack is added to the above. For calculating the variation of frequency (and therefore that of rigidity) statistical theory of strength in repeated loading is used, taking account of destruction of a part

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Variation of natural ...

of grains. For elastic systems in the case of uniform distribution of average deformations over the whole volume of the body under load the frequency variation is

$$\frac{N_n}{N_0} = \sqrt{\frac{E_n}{E_0}} = \sqrt{1 - f'_{z_2}} \qquad (1)$$

When n is the number of cycles, E the modulus of elasticity and f the deflection. In the case of manifold distribution of deformations over the specimen, the variation of rigidity should be calculated according to this distribution and according to the decrease of E for every deformation. Then the ratio of natural frequencies (for a cantilever specimen of rectangular cross-section, loaded by a force at the end), is

Card 2/6

Variation of natural ...

$$\frac{N_n}{N_o} \approx 1 - \frac{1}{2} \frac{3}{\sigma_{yM}^3} \int_0^{\sigma_{yM}} \sigma_y^2 \frac{\Delta(EI)_n/(EI)_o}{1 - \Delta(EI)_n/(EI)_o} d\sigma_y \qquad (2)$$

where $\sigma_{yM} = Pl/w$, σ_{T_o} is the yield limit at n = 0, b is a proportionality coefficient, μ is Poisson's coefficient. If there is a fatigue crack in one of the specimen's sections the general form of frequency variation is

$$\frac{N_o}{N_n} \approx 1 + \frac{A_N}{2} \left[\frac{(EI)_o}{(EI)_n} - 1 \right] \qquad (3)$$

Here $A_N = A_y$; A is a coefficient depending on dimensions and form

Card 3/6

of the specimen, $\gamma = 0.5$ = a coefficient accounting for load of the opposite sign. The recommended method of calculating the frequency variation is as follows: 1. Variation of rigidity of a cross-section $\Delta(EI)_n/(EI)_o$ with increase of n is calculated for the equation of stress σ_y from

$$(EI)_n = E_o \int_{-h}^{+h} F(z_2)u^2 c\,du \qquad (4)$$

where

$$F(z_2) = \frac{(z_2)^\mu}{A^\mu + (z_2)^\mu}$$

$$\frac{\Delta(EI)_n}{(EI)_o} = \frac{(EI)_o - (EI)_n}{(EI)_o} = \frac{3}{\mu+3}\left(\frac{A}{z_{2h}}\right)^\mu -$$

Card 4/6

Vibration of natural ...

$$- \frac{3}{2\mu + 3} \left(\frac{A}{z_{2h}} \right)^{2\mu} + \ldots \qquad (5)$$

The results are plotted as

$$\Delta (EI)_n/(EI)_o = \varphi(n).$$

2. From the graphs, values of $\Delta (EI)_n/(EI)_o$ for several values of σ_y are taken. 3. These values make it possible to calculate the integrand and, by graphical integration, the integral of relations having type (2). Experimental verification of the above relations on specimens made of AM6T (AM6T) alloy by means of resonance cycle with given deformation in bending showed satisfactory coincidence of the results before the appearance of a fatigue crack. The variation of natural frequencies during the expansion of the crack was verified on specimens from 30XГCA (30KhGSA) steel (σ = 120 kg/mm^2)

Card 5/6

on a radio installation by self-oscillation. The results confirm the above dependencies. [Abstracter's note: Complete translation.]

Card 6/6

SOFRONOV, Yu. D., Cand Tech Sci -- (diss) "Principles of change in strains and deformations upon repeated loading of certain metals used in aviation construction." Kazan', 1960. 13 pp including cover; (Ministry of Higher and Secondary Specialist Education RSFSR, Kazan' Aviation Inst); 150 copies; price not given; (KL, 18-60, 152)

SOFRONOV, Yu.D.

Changes in the frequency of natural vibrations caused by repeated loadings. Trudy KAI no.62:99-108 '61. (MIRA 17:2)

SOFRONOV, Yu.D., kand. tekhn. nauk, dotsent

Changes in natural vibration frequencies during repeated loading. Izv. vys. ucheb. zav.; mashinostr. no.2:72-78 '63. (MIRA 16:8)

1. Kazanskiy aviatsionnyy institut.

SOFRONOV, Yu.D., dotsent

Fatigue breakdown due to resonance vibrations. Izv. vys. ucheb. zav.; mashinostr. no.9:72-80 '63.
(MIRA 17:3)

1. Kazanskiy aviatsionnyy institut.

ACCESSION NR: AR4014429 S/0124/64/000/001/V079/V080

SOURCE: RZh. Mekhanika, Abs. 1V609

AUTHOR: Sofronov, Yu. D.

TITLE: The propagation velocity of fatigue flaws

CITED SOURCE: Tr. Kazansk. aviats. in-ta, vy*p. 77, 1963, 130-147

TOPIC TAGS: fatigue, fatigue flaw, flaw propagation

TRANSLATION: The study of the propagation velocity of fatigue flaws utilizes the ordinary concept of a damage function D whose value is initially zero while after the breakup its value is one. During the transitional period, this function depends on the characteristics of the cross sectional area which is still undestroyed

$$D = 1 - \frac{F_n}{F_0} \qquad (1)$$

The speed at which the flaw grows is expressed through the derivative of D using the number of damage cycles n

$$\frac{dD}{dn} = DK \qquad (2)$$

Card 1/3

where K is a coefficient depending on the overload of the material, on the type of deformation, and on the effective coefficient of the concentration of stresses of a sample with an initial fatigue flaw.

The change in the force conditions connected to the changes in the stiffness of the sample is characterized by the stability coefficient K_c whose magnitude is equal to one in the case of cycles with given load, while in the case of given deformation cycles its value is given by

$$K_c = \frac{C_n}{C_o} = \frac{1}{1+A(F_o/F_n - 1)} \qquad (3)$$

where A - a coefficient dependent on the dimensions and the shape of the sample, and the width and orientation of the flaw; C_n, C_o - stiffness of the injured original sample. From what was said above it follows that D takes the form

$$D = D_o \exp (Kn) \qquad (4)$$

for a cycle with given loads, and

$$D = D_o \exp [(1-A)Kn] \qquad (5)$$

for a cycle with given deformations. At the instant of final breakdown, $D = D_p$ in the case of cycles with variable force conditions turns out to be a linear function

ACCESSION NR: AR4014429

of the excess load (see Shashin, M. Ya., Zavodsk. laboratoriya, 1952, 18, No. 2; Vagapov, R. D., Fridman Ya. B., Zavodsk. laboratoriya, 1961, 27, No. 2, 183-188-RZh-Mekh, 1961, 12V495).

Experimental data obtained by the author and other investigators were generalized for the purpose of checking Equations (4) and (5) and for the determination of the values of K and A.

The experimental data concerning the development of flaws agree with the expression (4) and (5) during the period corresponding to a steady state of development. The final stage does not obey the indicated regularities. The history of the loading and the magnitude of excess load prior to the appearance of the flaw do not affect its speed of propagation. A fatigue flaw can grow at stresses which are below the fatigue limit. M. Ya. Shashin.

DATE ACQ: 18Feb64 SUB CODE: AP ENCL: 00

Card 3/3

8729-65 EWT(d)/EWT(l)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/
EWP(b)/EWP(l) Pf-4 JD

ACCESSION NR: AT5003082 S/2529/63/000/077/0148/0149

AUTHOR: Lukovnikov, I. F.; Peshkov, G. K.; Sofronov, Yu. D. (Candidate of technical sciences)

TITLE: Machine for testing fatigue of flat specimens with a prescribed strain

SOURCE: Kazan. Aviatsionnyy institut. Trudy, no. 77, 1963. Stroitel'naya mekhanika, 148-149

TOPIC TAGS: metal fatigue, plate fatigue, endurance test, fatigue testing

ABSTRACT: A machine was designed for testing the fatigue of flat specimens with a prescribed strain. The article includes an overall view of the machine, and the electrical diagram of the device for fixing the moment of failure. The design of the loading device and the device for fixing the moment of failure of the specimen are the original features of this machine. The machine can load simultaneously 8 specimens on 4 levels of stress, and at one setting it can yield data for plotting the entire endurance curve. Fig. 1 of the Enclosure is an end view of the loading device and also shows the device for fixing the moment of failure. Orig. art. has: 3 figures.

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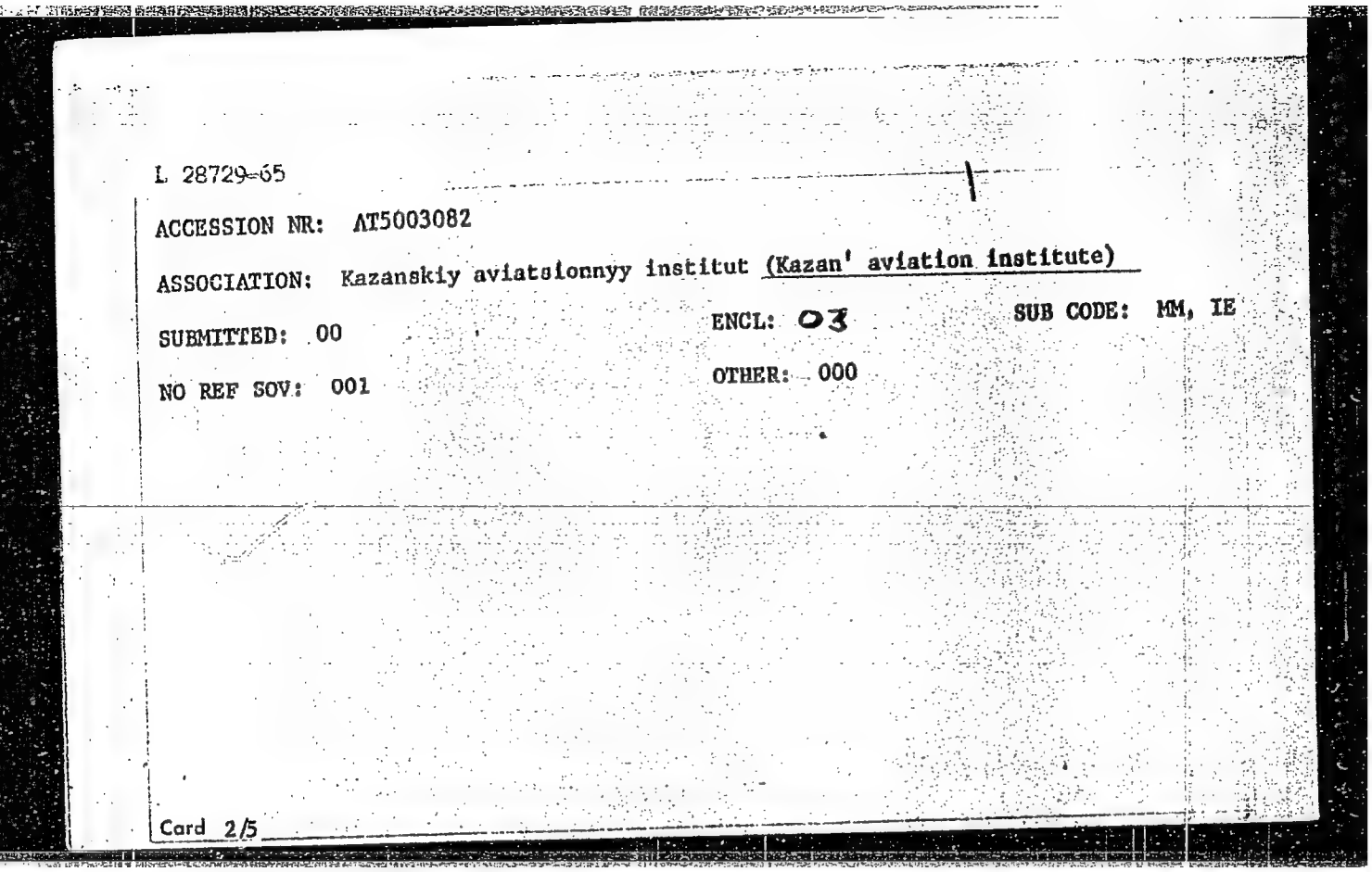

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ACCESSION NR: AT5003082

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan' aviation institute)

SUBMITTED: 00 ENCL: 03 SUB CODE: MM, IE

NO REF SOV: 001 OTHER: 000

Card 2/5

S/0032/64/030/001/0077/0081

ACCESSION NR: AP4015326

AUTHOR: Sofronov, Yu. D.

TITLE: A study of the speed of fatigue crack propagation by measuring the sample vibration frequency

SOURCE: Zavodskaya laboratoriya, v. 30, no. 1, 1964, 77-81

TOPIC TAGS: metal fatigue, fatigue crack, fatigue crack detection, crack propagation velocity, metal vibration frequency, steel 20, ZG 10A sound generator, MEMU 100 amplifier, EO 7 oscillograph, SG 2 galvanometer

ABSTRACT: A method is proposed for determining the propagation speed of a fatigue crack by measuring the variation in the vibration frequency of the sample. The method is based on an empirical relation between the sample vibration frequency and the metal failure (expressed in terms of the variation in the moment of inertia of the unbroken part of the sample). The tested samples were made of steel 20. A special testing apparatus was built for this purpose (see Fig. 1 of the Enclosure). It can operate either under automatically produced vibrations or it can be activated by a sound generator ZG-10A (1). The auto-

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ACCESSION NR: AP4015326

vibration system consists of the sample (2) fixed in the clamp (3), an indicator (4), a phase changer (5), an MITU-100 amplifier (6), and an electromagnet (7). The frequency is registered with a meter (8) or with the sound generator (1) and the EO-7 oscillograph (9). The amplitude meter (10) measures the amplitude of the sample vibrations and of the registering SG-2 galvanometer (11). The indicator readings are registered by the galvanometer (11). The experimental results showed that a fatigue crack may develop under stresses considerably lower than the fatigue limit stress. There exists, however, a minimum stress below which a fatigue crack does not increase and which depends on the type of the sample impairment. The process of loading and the magnitude of the overload before the moment of metal failure do not practically affect the propagation speed of a crack. Orig. art. has: 5 figures and 6 formulas.

ASSOCIATION: Kazanskiy aviatsionnyy institut (Kazan Institute of Aviation)

SUBMITTED: 00 DATE ACQ: 03Feb64 ENCL: 01

SUB CODE: MM NO REF SOV: 004 OTHER: 000

Card 2/3

ACCESSION NR: AP4015326

ENCLOSURE: 01

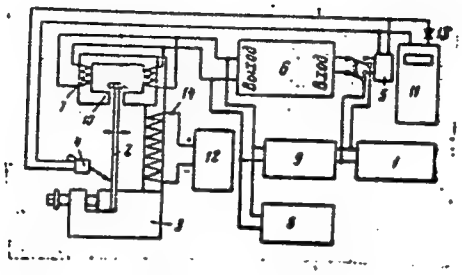

Fig. 1

Card 3/3

SOFRONOV, Yu.T.

Mechanism of the drop in the plethysmogram of the extremities during compression of the artery on the basis of blockade of the venous outflow. Fizio. zhur. 48 no.8:983-988 Ag'62. (MIRA 16:6)

1. From the Department of Physiology, Medical Institute, Grodno.
(PLETHYSMOGRAPHY) (EXTREMITIES, LOWER—BLOOD SUPPLY)

PECHKOVSKIY, V.V.; SOFRONOVA, A.V.

Thermochemical transformations of barium and calcium iodides in the inert oxidizing and reducing media. Zhur. neorg. khim. 10 no.6:1427-1432 Je '65. (MIRA 18:6)

1. Permskiy politekhnicheskiy institut.

[redacted], A.V.

Thermochemical transformations of copper iodide. Zhur. neorg. khim. 10 no.7:1513-1515 Jl '65. (MIRA 18:8)

SOFRONOVA, I.L.

Exercise therapy in the over-all treatment of chronic gastritis under sanatorium conditions. Vop. kur., fizioter. i lech. fiz. kul't. 26 no.1:31-34 '61. (MIRA 14:5)

1. Iz I kafedry terapii (zav. - prof. L.M.Rakhlin) Kazanskogo instituta usovershenstvovaniya vrachey imeni V.I.Lenina i Kazanskogo spetsializirovannogo sanatoriya Vsesoyuznogo tsentral'nogo Soveta professional'nykh soyuzov (glavnyy vrach L.I.Zlatkin).
(EXERCISE THERAPY) (STOMACH--INFLAMMATION)

ARONOV, S.G.; SKLYAR, M.G.; BRAGILOVSKAYA, O.N.; SINTSEROVA, L.G.; SOFRONOVA, M.A.; SHUSTIKOV, V.I.

Thermal plasticization of sapropelic and cannel coals as a method for their processing. Khim. i tekh. topl. i masel 7 no.1:34-40 Ja '62. (MIRA 15:1)

1. Ukrainskiy uglekhimicheskiy institut.
(Coal) (Plasticization)

SOFRONOVA, N.

Man outstripping time. Mashinostroitel' no.7:5 Jl '63.
(MIRA 16:9)
(Turning—Technological innovations)

33914
S/640/61/000/000/035/035
D205/D302

15.2230
21.2100

AUTHORS: Voronov, N. M. and Sofronova, R. M.

TITLE: Interaction of uranium dioxide with barium oxide

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Stroyeniye splavov nekotorykh sistem s uranom i toriyem. Moscow, Gosatomizdat, 1961, 482-489

TEXT: The aim of this investigation which represents a part of a wider study on the interaction of UO_2 with the oxides of alkaline-earth metals, was to produce reliable data on the UO_2 - BaO system because those published were lacking in precision. In particular, the reported high solubility of BaO in UO_2 of 20 - 30 mol.% in the solid state seemed doubtful, considering the large difference in the ionic radii between U^{4+} and Ba^{2+}. UO_2 containing 0.1% impurities and BaO containing 1.0% foreign matter were employed. The specimens were prepared by smelting in an arc furnace in argon.

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Interaction of uranium ...

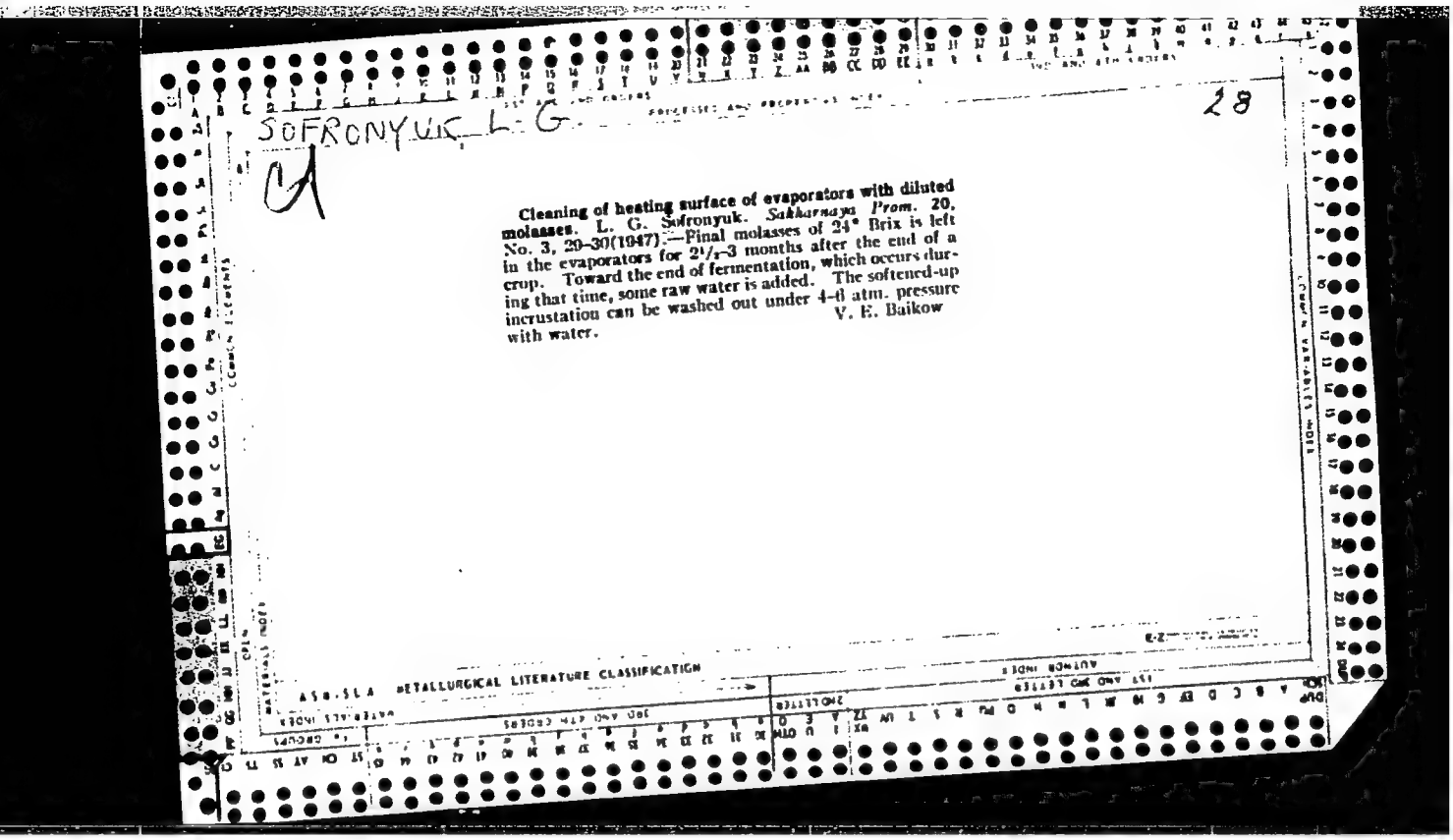
The difficulty of preparing homogeneous samples is stressed. X-ray (Fe radiation) and thermal methods of investigation were applied. The melting point was determined by using a tungsten resistance furnace in argon. The error was ± 25°C. Cast, annealed and hardened from different temperatures alloys were examined. The X-ray data subdivided the alloys into 3 groups. The first, containing 0 - 50 mol.% BaO reveals the compound $BaUO_3$ which crystallizes with the perovskite structure. The second group comprises the range 50 - 70 mol.% BaO, in which the compound $3BaO.UO_2$ is formed. A continuous series of solid solutions is formed between $3BaO.UO_2$ and $BaUO_3$. The third group, containing more than 75% BaO, produces alloys unstable in air. These are mixtures of the solid solutions of $3BaO.UO_2$ and $BaUO_3$ and of BaO. It was established that the solubility of BaO in UO_2 in the solid state is zero. The question of the BaO solubility in $BaUO_3$ and also the question of the compounds which are formed between the components of the binary system UO_2BaO in

Card 2/3

RUKAVTSOVA, V.F.; STIFATOVA, N.N.; KOROBKIN, V.B.; MOROZOVA, T.I.; SOFRONOVA, V.A.; SHAFOROST, P.D.; PLATONOVA, N.P.; YEREMENKO, O.S.; IVANOVA, A.M.; SILAYEVA, N.Ya.; SUYETINA, S.M.; RAL'YANOVA, T.Ye.;

Study of the dust factor in the founding departments of six Krasnodar plants. Nauch. trudy Kub. gos. med. inst. 19:63-76 '62. (MIRA 17:8)

1. Iz sanitarno-epidemiologicheskoy stantsii g. Krasnodara i polikliniki No.8 Krasnodara.



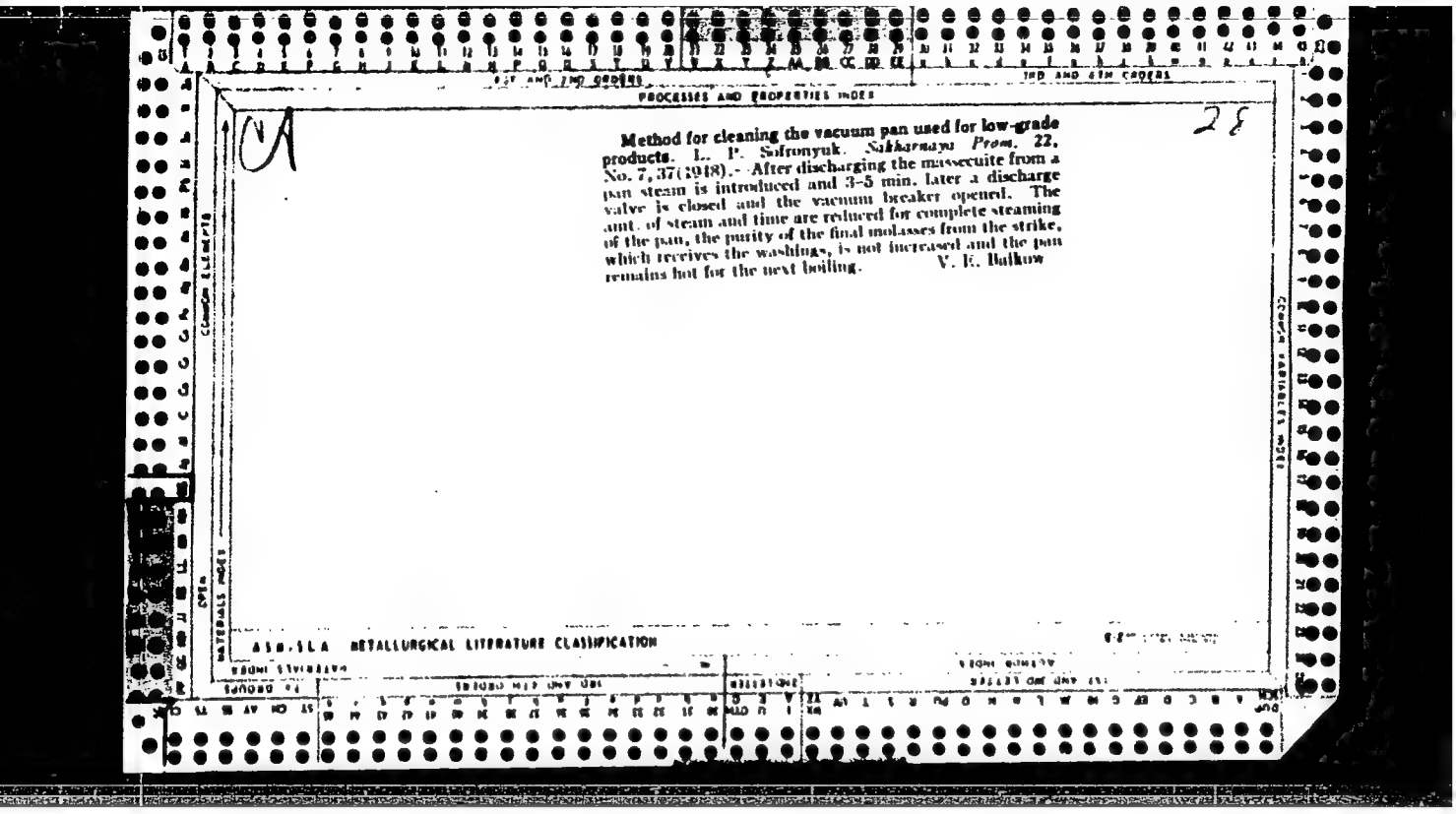
SOFRONYUK, L. G.

CA

28

Cleaning of heating surface of evaporators with diluted molasses. L. G. Sofronyuk. *Sakharnaya Prom.* 20, No. 3, 29–30(1947).—Final molasses of 24° Brix is left in the evaporators for 2½–3 months after the end of a crop. Toward the end of fermentation, which occurs during that time, some raw water is added. The softened-up incrustation can be washed out under 4–6 atm. pressure with water.

V. E. Baikow



PROCESSES AND PROPERTIES INDEX

Method for cleaning the vacuum pan used for low-grade products. L. P. Sofronyuk. *Sakharnaya Prom.* 22, No. 7, 37(1948).- After discharging the massecuite from a pan steam is introduced and 3–5 min. later a discharge valve is closed and the vacuum breaker opened. The amt. of steam and time are reduced for complete steaming of the pan, the purity of the final molasses from the strike, which receives the washings, is not increased and the pan remains hot for the next boiling. V. E. Balkow

ASB/SLA METALLURGICAL LITERATURE CLASSIFICATION

CA

28

Application of sodium dithionite. L. P. Sofronyuk. *Sakharnaya Prom.* **29**, No. 8, 28-8(1955). The color of beet sugar boiled in white sugar pans was improved by the injection of $Na_2S_2O_4$ into the pan at intervals before seeding and after formation of crystals. V. E. Baikow

SOFRONYUK, L. P.

USSR (600)

Glue

Renewing production of pectin paste from bafasse, Sakh prom. 26 No. 8, 1952.

9. Monthly List of Russian Accessions, Library of Congress, November 1952, Uncl.

SOFRONIUK, I. P.

British Abst.
B III
Aug. 1953
Sugar, Starch, and Gum Industries

(1)

Removing scale from apparatus by means of molasses solutions. I. P. Sofroniuk (*Sakhar. Prom.*, 1953, No. 3, 32–35; *Sug. Ind. Abstr.*, 1953, 15, 77).—Molasses diluted to 24—26° Brix with raw water, and set aside to undergo spontaneous acid fermentation, is recommended for scale removal, with negligible attack on the metal of the apparatus. P. S. Arup.

SOFRONYUK, L.P.

Irregularities in production. Sakh.prom. 27 no.10:25-26 '53. (MLRA 6:11)

1. Sakharnyy zavod im. Artema. (Sugar industry)

SOFRONYUK, L.P.

Causes of fracture in fastening bolts used for the banding of rotary diffusers. Sakh.prom.31 no.9:34-35 S '57. (MIRA 10:12)

1. Lannovskiy sakharnyy zavod.
(Bolts and nuts) (Sugar industry--Equipment and supplies)

SOFRONYUK, L.P.

Mechanization of limestone crushing and the utilization of limestone fines. Sakh.prom.35 no.3:52-54 Mr '61. (MIRA 14:3)

1. Gindeshtskiy sakharnyy zavod.
(Limestone)

SILIN, P.M.; LITVAK, I.M.; BARABANOV, M.I.; LIKHITSKIY, M.Kh.; BODNAR', S.G.; ROSTRIPENKO, I.A.; SOFRONYUK, L.P.; YAROVENKO, O.A.; MIROSHNIK, A.P.; IVASENKO, G.

Accelerating the sedimentation in settlers. Sakh. prom. 36 no.7:9-17 Jl '62. (MIRA 17:1)

1. Moskovskiy tekhnologicheskiy institut pishchevoy promyshlennosti (for Silin). 2. Kiyevskiy tekhnologicheskiy institut pishchevoy promyshlennosti imeni Mikoyana (for Litvak, Barabanov, Likhitskiy). 3. Lannovskiy sakharnyy zavod (for Bondar', Ivasenko). 4. 2-y im. Petrovskogo sakharnyy zavod (for Rostripenko). 5. Gindeshtskiy sakharnyy zavod (for Sofronyuk). 5. Krasnyanskiy sakharnyy zavod (for Yarovenko, Miroshnik).

BORISOVICH, A.A.; SOFRONYUK, L.P.

Is it worthwhile to stick to this tradition? Sakh.prom. 38 no.1:6-7 Ja '64. (MIRA 17:2)

1. Gindeshtakskiy sakharnyy zavod.

SOFRONYUK, L.P.; MAKSIMUK, P.S.

Mechanized concrete mixer. Sakh.prom. 38 no.1:44-45 Ja '64.
(MIRA 17:2)

SOFRONYUK, L.P.

Laboratories of sugar factories. Sakh.prom. 38 no.3:16-17 Mr '64. (MIRA 17:4)

1. Gindeshtskiy sakharnyy zavod.

SOFROSHENKO, A. F

AID Nr. 976-11 26 May

NITRIDING OF DIFFUSION-COATED STEELS (USSR)

Grdina, Ya. V., and A. F. Sofroshenko. Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 2, 1963, 115-119.

S/148/63/000/002/003/006

The Siberian Metallurgical Institute has experimented with the nitriding of CT3 steel [0.14-0.22% C] impregnated with Al, B, Ti, or Si and 38XMA steel [0.35-0.42% C, 1.35-1.65% Cr, 0.15-0.25% Mo] impregnated with Al. The nitriding, done in cracked ammonia at 500-530°C for 22-24 hrs, produced in Al-, B-, Ti-, and Si-impregnated steels nitrided layers 0.4, 0.33, 0.30, and 0.16 mm deep, respectively, with corresponding hardnesses of 1500-1700, 2500-2800, 1600-1650, and 900-950 HV. Nitriding at a temperature of 850°C of specimens coated with B, Ti, and Si produced nitrided layers 0.30, 0.32, and 0.33 mm, deep, respectively, with corresponding hardnesses of 950-1000, 1000-1200, and 50 HV. [WW]

Card 1/1

ACCESSION NR: AP4033704 S/0148/64/000/004/0124/0128

AUTHOR: Grdina, Yu. V.; Sofroshenkov, A. F.; Koval', L. A.

TITLE: Resistance of Combined Coatings During Hydroabrasive Wear

SOURCE: IVUZ. Chernaya metallurgiya, no. 4, 1964, 124-128

TOPIC TAGS: diffusion layer, heat treatment, hydroabrasive wear, calorization, titanization, chrome plating, siliconizing

ABSTRACT: In an earlier paper the authors investigated the properties of diffusion layers produced by combining chemical treatment with heat treatment, and they continue their research by reporting additional test results. Sleeves, checkers and segments were exposed to hydroabrasive wear. The treatment consisted of calorizing (950-10000 C) for 12 hrs, titanizing (1080 C) for 10 hrs., siliconizing (1080-1100 C) for 11 hrs. and chromizing (1150 C) for 8 hrs. All parts were ground, degreased and nitrided at 500-550-520 C for 70 hrs. The authors found that wear resistance depended not only on microhardness but also on microstructure, brittleness of the layer and test conditions in which pulp- and coal lines as well as hot steel runners were simulated. Although the method

Card 1/2

SOFROVA, B.

CZECHOSLOVAKIA

JINDRA, A.

no academic degree indicated

Institute for Biochemistry and Microbiology, Pharmaceutical Faculty, Bratislava, and Institute for Biochemistry, Charles University, Prague (Institut fur Biochemie und Mikrobiologie, Pharmazeutische Fakultat, Bratislava, und Institut fur Biochemie, Karluniversitat, Prag)

Prague, Collection of Czechoslovak Chemical Communications, vol 27, No 10, Oct 62, pp 2467-2470.

"Biosynthesis of Alcaloids VI. Enzymatic Hydrolysis of Tropan-Alcaloids"

Co-authors:

SOFROVA, B., Institute for Biochemistry and Microbiology, Pharmaceutical Faculty, Bratislava, and Institute for Biochemistry, Charles University, Prague

IKBLOVA, S., as above

JINDRA, A.; SOFROVA, D.; HEBLOVA, S.

Biosynthesis of alkaloids. Part 6 : Enzymatic hydrolysis of tropane alkaloids. Coll Cz chem 27 no.10:2467-2470 O '62.

1. Institut fur Biochemie und Mikrobiochemie, Pharmazeutische Fakultat, Bratislava und Institut fur Biochemie, Karlsuniversitat, Prag.

ABKIN, B.V., inzh.; LOSEV, A.S., inzh.; SOFRYGIN, P.V., inzh.; SLOBODYAN, I.P., inzh.; TSYUPA, F.P., inzh.

Start of the leading PK-47 boiler. Elek. sta. 35 no.9:2-5 S '64. (MIRA 18:1)

SOFRYGIN, V.P.

Correlation between the speed of boring and the edge of the bore bit in hammer and churn boring. Izv. AN Kazakh. SSR. Ser. gor. dela, met., stroi. i stroimat. no.2:71-75 '57. (MLRA 10:9)
(Boring machinery)

SOFRYGIN, V.P., Cand Tech Sci -- (diss) "Study of sinking of wells by means of ~~hole drifting with~~ pneumatic hammers under conditions of Dznezkazgan." Alma-Ata, 1958, 16 pp with graphs (Min of Higher Education USSR. Kazakhstan Mining Metallurgical Inst) 120 copies (KL, 28-58, 137)

MORDUKHOVICH, I.L.; GAVRILOV, G.G.; SOFRYGIN, V.P.

Drilling holes with a hydrodrill. Sbor. nauch. trud. Kaz GMI no.19:54-65 '60. (MIRA 15:3)
(Boring machinery--Hydraulic drive)

Q

USSR/Farm Animals. General Problems.

Abs Jour: Ref Zhur-Biol., No 20, 1958, 92484.

Author : Sofrygina, M.T.
Inst : Kazakh Univ.
Title : Segmented Structure of the Lungs in Farm Animals.

Orig Pub: Uch. zap. Kazakhsk. un-ta, 1957, 29, 155-159.

Abstract: It was demonstrated in 6 pigs, 4 bulls and 7 sheep that the lungs of young animals are each divided into a cranial section (of laciniate structure) and a caudal section (of segmented structure). There are apical and cardiac lobes in the first section, and the diaphragmatic (phrenic) lobe in the second section. The lobes of the cranial section and the segments of the caudal lobe are divided in a similar manner into subsegments, and the latter into lobules of various

Card : 1/2

2

BROCIC, Mladen, dr.; SOFTIC, Dzevad, dr.; STEVANOVIC, Aida, dr.

Cytological picture of post-term pregnancy. Med. arh. 18 no.2:73-78 Mr-Je '64.

1. Ginekolosko-akuserska klinika Medicinskog fakulteta u Sarajevu (Sef: Prof. Jelka Knezevic -- Svarc).

SOFTIC, Nijaz, dr., asist. II Interne klinike U Sarajevu.

Acute tubular nephropathies. Med. arh., Sarajevo 8 no.3:89-104 May-June 54.

1. II Interna klinika Med. fakulteta - Sarajevo, sef. prof. dr. Lusicky.
(NEPHROSIS
acute)

SOFTIC, Nijaz.

Neurofibromatosis. Med. arh., Sarajevo 8 no.4:101-106 July-Aug 54.

1. Asistent II Interne klinike u Sarajevu
(NEUROFIBROMATOSIS)

SOFTIC, Nijaz, Dr.

Subcutaneous infusion of ACTH in the treatment of bronchial asthma. Lijec. vjes. 78 no.5-6:247-256 May-June 56.

1. Iz Bolnickog odjela Doma narodnog zdravlja pri DSUP u Zagrebu.

(ASTHMA, ther.
ACTH, subcutaneous admin. (Ser))
(ACTH, ther. use
asthma, subcutaneous admin. (Ser))

SOFTIC, Nijaz, Dr.

Congenital anomalies of the gallbladder (diverticulosis). Lijec vjes 82 no.7/8:583-590 '60.

1. Iz Internog odjela Opce bolnice "Dra. J.Kajfesa" u Zagrebu
(GALLBLADDER abnorm)

SOFTIC, S.

SOFTIC, S. Potential role of the Kakanj Thermo-electric Plant. p. 565

Vol. 9, no. 11/12, Nov./Dec. 1956
ELEKTROPRIVERDA
TECHNOLOGY
Beograd

So: East European Accession, Vol. 6, no.3, March,1957

SOFYAN, L.A.

Lodging (fusariosis) of pine seedlings in the nurseries of the northern regions of Armenia and measures of its control. Izv.AN Arm.SSR.Biol.i sel'khoz.nauki 4 no.6:543-553 '51. (MLRA 9:8)

1. Institut fitopatologii i zoologii Akademii nauk Armyanskoy SSR.
(Pine--Diseases and pests)
(Armenia--Forest nurseries)

SOFYAN, L.A.

Effect of some fungicide disinfectants on the germinating power of pine seeds. Izv.AN Arm.SSR.Biol.i sel'khoz.nauki. 5 no.3:79-83 '52. (MLRA 9:8)

1. Institut fitopatologii i zoologii Akademii nauk Armyanskoy SSR.
(FUNGICIDES) (PINE) (SEEDS)

SOFYAN, L. A.

"Diseases of Varieties of Seedling Trees and Forestry Plantings of the Northern Rayons of the Armenian SSR and Measures for Combating the Most Important of Them." Cand Biol Sci, Acad Sci Armenian SSR, Division of Biological Sci, Yerevan, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

SOFYAN, L.A.

Diseases of forest tree seedlings in the nurseries of the northern regions of Armenia and measures for controlling the most important of them. Izv.AN Arm.SSR.Biol.i sel'khoz.nauki 6 no.1:27-42 '53. (MLRA 9:8)

1. Sektor zashchity rasteniy AN Arm. SSR.
(Armenia--Trees--Diseases and pests)

SOFYAN, L. A.

4666. Sofyan, L. A. vrediteli i bolefni dekorativnykh derev'yevi kustarnikov i bor'ba s. nimi. yerevan, izd-vo an arm. ssr. 1954, 112 s. s ill. 20 sm. (akad. naukarm. ssr. nauch.-popul seriya. 10) 2,000 ekz. i r. 15 k--na arm. yaz--(54-57816) 635.975/7; 632-632,2/7:635.976/7) (47.925)

ZHURAVLEV, I.I.; SOFYAN, L.A.; KECHEK, N., otvetstvennyy redaktor; TATEVOSYAN, S., redaktor izdatel'stva; KAPLANYAN, M., tekhnicheskiy redaktor

[Practical instructions for controlling lodging of seedlings in nurseries] Prakticheskie ukazaniia po bor'be s poleganiem seiantsev v pitomnikakh. Erevan, Izd-vo Akademii nauk Armianskoi SSR, 1955. 43 p. (Nauchno-populiarnaia seriia, no.4) (MIRA 9:12)
(Seedlings)

SOF'YANOVA, V. M.

"Mosquito Breeding Places." Proceedings of Inst. Epidem and Microbiol im. Gamaleya 1954-56

Dissertations Critically Analyzed at Sessions of the Scientific Council During 1953. Inst. Epidem and Microbiol im. Gamaleya AMS USSR

SO: Sum 1186, 11 Jan 57.

TERNOV-TROP, L.K., inzh.; ROYZ, I.A., inzh.; SOKOLOV, I.I., inzh.

Hammer mill clutches. Energetik 12 no.7:17-20 Jl '64.
(MIRA 17:9)

DUBRAVSKIY, N.G., redaktor; SOGALOV, L.M., redaktor; TROFIMOVA, T.N., tekhnicheskiy redaktor

[Some problems in the regulation of aircraft jet propulsion engines; collection of translations] Nekotorye voprosy regulirovaniia vozdushno-reaktivnykh dvigatelei; sbornik perevodov. Pod red. N.G.Dubravskogo. Moskva, Gos. izd-vo oboronnoi promyshlennosti, 1947. 103 p. (MLRA 8:2)

1. Moscow. TSentral'nyy institut aviatsionnogo motorostroyeniya.
(Airplanes--Turbine-propeller engines)
(Airplanes--Turbojet engines)

FILIPPYCHEV, A.V.; SOGALOV, L.M., redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor.

[Small cylinder capacity engines for model airplanes] Mikrolitrazhnye porshnevye motory dlia letaiushchikh modelei. Izd. 2-e, perer. Moskva, Gos. izd-vo oboronnoi promyshl., 1954. 101 p. [Microfilm]
(Airplanes--Models) (MLRA 7:12)

GIL'ZIN, K.A., kandidat tekhnicheskiy nauk; SOGALOV, L.M., redaktor;
GLADKIKH, N.N., tekhnicheskiy redaktor

[From rocket to cosmic ship] Ot rakety do kosmicheskogo korablia.
Moskva, Gos. izd-vo oboronnoi promyshlennosti. 1954. 110 p.
[Microfilm] (MLRA 8:2)
(Rackets (Aeronautics))

BLANDOV, Petr Ivanovich; SOGALOV, L.M., redaktor; GLADKIKH, N.N., tekhnicheskiy redaktor.

[Problems in designing the airplane landing gear.] Nekotorye voprosy proektirovannia shassi samoleta. Moskva, Gos.izd-vo obor.promyshl., 1956. 70 p. (Moscow. Aviatsionnyi institut. Trudy no.56). (MLRA 9:9)
(Airplanes--Landing gear)

[redacted], M. I., and KOZLOVSKIY, M. V.

"Synthesis and properties of some stereoisomeric polyamides and polyethers," a paper presented at the 9th Congress on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow, Polymer Research Inst.

B-3,084,395

SOGEL, K.

The biochemic composition of cultivated berries. p. 367.

GAZ, WODA I TECHNIKA SANITARNA (Stowarzyszenie Naukowo-Techniczne Inzynierow i Techników Sanitarnych, Ogrzewnictwa i Gazownictwa) Warszawa, Poland, Vol. 13, no. 8, Aug. 1958.

Monthly list of East European Accession (EEAI) LC, Vol. 9, no. 2, Feb. 1960

Uncl.

SOV/105-59-3-12/27

8(5).

AUTHORS: Shkil'ko, G. Ya., Engineer, Sogin, G. V., Engineer

TITLE: Performance of Squirrel-cage Induction Motors at Low Ambient Temperatures (Rabota asinkhronnykh korotkozamknutykh dvigateley pri nizkikh temperaturakh okruzhayushchey sredy)

PERIODICAL: Elektrichestvo, 1959, Nr 3, pp 56 - 58 (USSR)

ABSTRACT: When a choice is to be made of motors with a maximum power of 5 kw, which operate on building sites at temperatures ranging from +35° to - 20°C (according to the supplement to GOST 186-52), sometimes even to temperatures as low as -50°C, the modification of the characteristic curves of such motors must be taken into account. This is an investigation of the problem. The modifications of the characteristics are studied of motors, which are due to ambient temperature changes, and of motors of a general industrial design, which operate at temperatures down to -20°C. The question is raised and discussed, whether special designs would be expedient for motors, which operate under temperatures up to -50°C, and finally motors which operate under ambient temperature changes from +50 to - 50°C. Summarizingly the following statements are made: 1) If temperature changes from -20 to

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+35°C are encountered (temperature interval 55°C) motors of a general industrial design can be used. At lower temperatures checks must be made, whether the starting torque corresponds to the braking torque. If it is necessary, the deviation of the starting current from the rated value given in the catalog must be taken into account. 2) The temperature ranges of from -50 to +10°C and from -50 to +50°C do not seem appropriate in the case of motors of a low capacity. The use of frost-proof motors, which are intended for such purposes, guarantees a reduction in weight, of outside dimensions and of raw material expenditure. This also results in a reduction of running costs because of an improvement of the power indices. 3) It proved to be advisable to introduce the concept of standard or calculation temperature in the design of conventional industrial motors and of low-temperature motors. It is specified as the temperature, where the ambient temperature dependent characteristics must agree with the values given in the catalog. There is 1 figure.

Performance of Squirrel-cage Induction Motors at Low Ambient Temperatures SOV/105-59-3-12/27

ASSOCIATION: Khar'kovskiy elektrotekhnicheskiy zavod (Khar'kov Electro-technical Factory)

SUBMITTED: November 29, 1958

Card 3/3

SHKIL'KO, G.Ya., inzh.; SOGIN, G.V., inzh.

Measurement of the torque of an asynchronous motor during the heating of the windings. Elektrotekhnika 34 no.9:71-72 S '63. (MIRA 16:11)

AKSENOV, V.I., inzhener; SOGOLOV, A.A., inzhener.

Preventing the rise of the small drum of the TP-170 boiler.
Elek.sta. 27 no.2:53-54 F '56. (MLRA 9:6)
(Boilers)

Sogolov A.A.

91-58-6-30/39

AUTHORS: Trofimovskiy, L.A., Engineer, and Sogolov, A.A., Engineer

TITLE: A Simplified Boiler Casing (Oblegchennaya obmurovka parovykh kotlov)

PERIODICAL: Energetik, 1958, Nr 6, pp 31-34 (USSR)

ABSTRACT: The authors describe in detail the construction of a simplified casing for steam boilers consisting of layers of thermo-insulating concrete, slag, and a gasproof coating. A base of concrete-casing panels covered with wire net is used, the thermo-insulating concrete being made of crushed diatom brick, alumina or Portland cement and dissolved asbestos. This simplified casing has proved to have better thermo-insulating properties than casings of the normal type. There are three figures and two tables.

AVAILABLE: Library of Congress

Card 1/1 1. Boiler liners-Design

SOGOLOV, L. I.

PA 34/49T93

USSR/Medicine - Biography
Medicine - Venereal Diseases

Jul/Aug 48

"In Honor of the Valuable Activity of Professor A. G. Lur'ye," L. I. Sogolov, 1 p

"Vest Venerol i Dermatol" No 4

Summarizes career of eminent venereologist.

34/49T93

SOGOLOV, M.I., dotsent

Additional protuberances of human teeth, of the type of tuberculum anomale Carabelli. Stomatologiia 35 no.3:59 My-Je '56. (MLRA 9:9)

1. Iz kafedry normal'noy anatomii (zav. - zasluzhennyy deyatel' nauki prof. M.S.Spirov) Kiyevskogo meditsinskogo instituta.
(TEETH--ABNORMALITIES AND DEFORMITIES)

SOGOLOV, M.I., dotsent (Kiyev)

Dry-air sterilization of stomatological instruments. Stomatologiia 38 no.3:75-76 My-Je '59. (MIRA 12:8)
(DENTAL INSTRUMENTS AND APPARATUS--STERILIZATION)

SOGOLOVA, T. I. Cand. Chem. Sci.

Dissertation: "Deformation of Polyisobutylene over a Wide Range of Temperatures." Sci Res Order of the Labor Red Banner Physicochemical Inst imeni L. Ya. Karpov, 30 Jun 47.

SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

L 44172-65 EPF(c)/EPR/EWT(m)/EWP(j)/T Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AP5011243 UR/0190/65/007/004/0576/0579

AUTHOR: Kargin, V. A.; Sogolova, T. I.; Rapoport-Molodtsova, N. Ya.

TITLE: Structure formation in and mechanical properties of plasticized isotactic polystyrene in the presence of artificial crystallization nuclei

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 4, 1965, 576-579, and insert facing p. 576

TOPIC TAGS: isotactic crystalline polystyrene, brittle polystyrene mechanical property, nonbrittle polystyrene

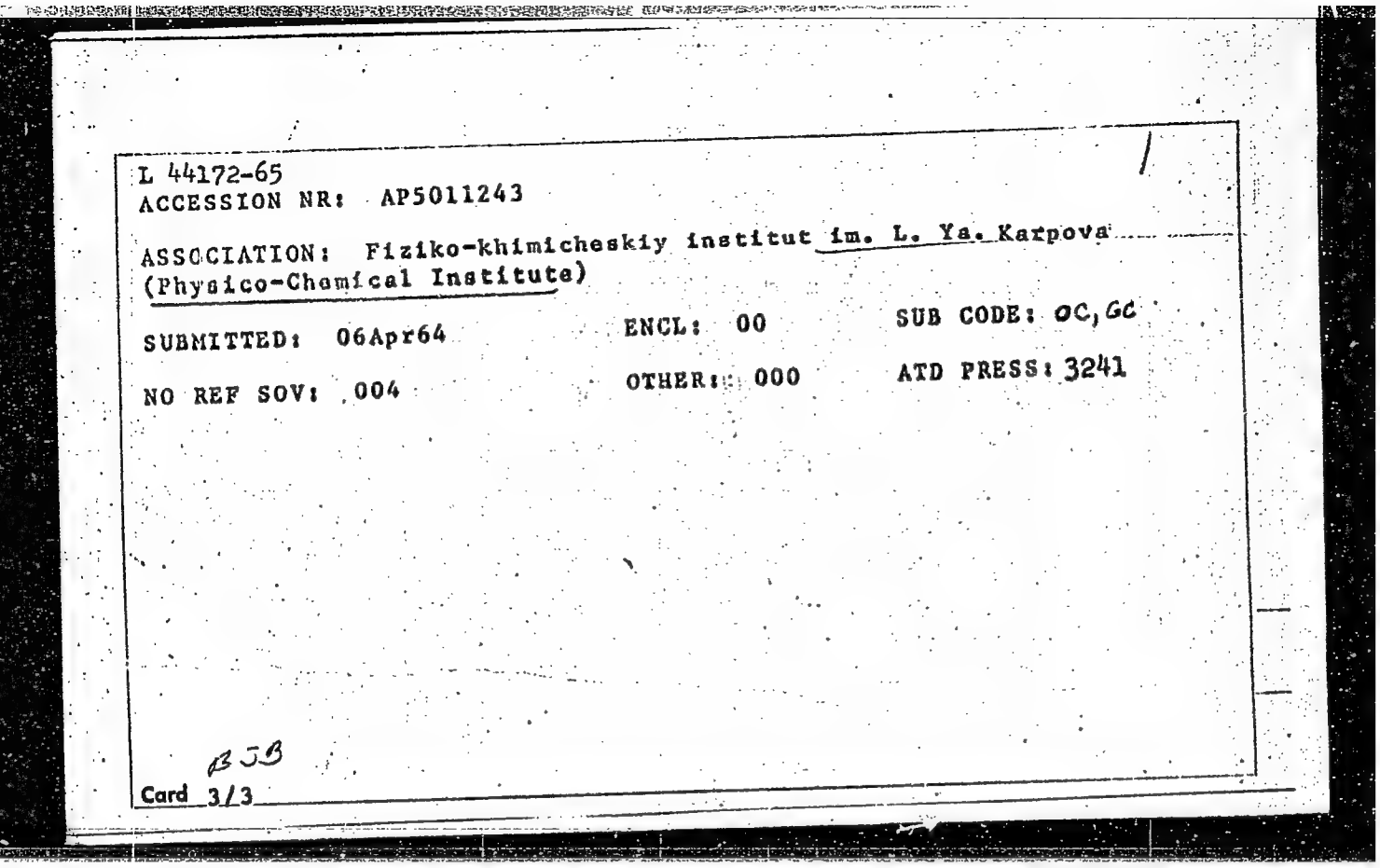
ABSTRACT: The brittleness of isotactic crystalline polystyrene (I) hampers industrial application of this material. Attempts to reduce the brittleness by plasticization resulted in a sharp drop in mechanical strength because of the formation of large morphological forms (supramolecular structures) and distribution of the plasticizer between individual structural elements, which hinders their aggregation. This study was undertaken to improve the mechanical properties of I by addition of artificial crystallization nuclei to melts of the

Card 1/3

L 44172-65
ACCESSION NR: AP5011243

polymer. These nuclei hinder the growth of large supramolecular structures. The experiments were conducted with films of I plasticized with 2.5 to 12 mol% dioctyl phthalate or dibutyl sebacate with 2% indigo crystals added. It was shown that the mechanical properties of I depend on the amount of plasticizer, and that there exists an optimum plasticizer concentration which insures comparatively good mechanical properties. For the case of dioctyl phthalate this concentration is 4.5 mol% (tensile strength, 286 kg/cm^2 at 20C and 110 kg/cm^2 at 110C). The mechanical properties of this material can be further improved by slow heating to 230C (tensile strength, 425 kg/cm^2 at 20C and 125 kg/cm^2 at 110C). Heat treatment promotes uniform distribution of the plasticizer in specimens and produces fine changes in this supramolecular structure. Part of the plasticizer evaporates in the course of heat treatment, which reduces its concentration to 2.7 mol%. However, initial introduction of only 2.7 mol% dioctyl phthalate in the polymer causes brittle films. Thus, introduction of artificial crystallization nuclei into I is an effective method of reducing the brittleness of the material without lowering its mechanical strength. Production of nonbrittle I is a prerequisite for its broad industrial use. Orig. art. has: 2 figures and 1 table. [BO]

Card 2/3



L 44172-65
ACCESSION NR: AP5011243

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-Chemical Institute)

SUBMITTED: 06Apr64 ENCL: 00 SUB CODE: OC, GC

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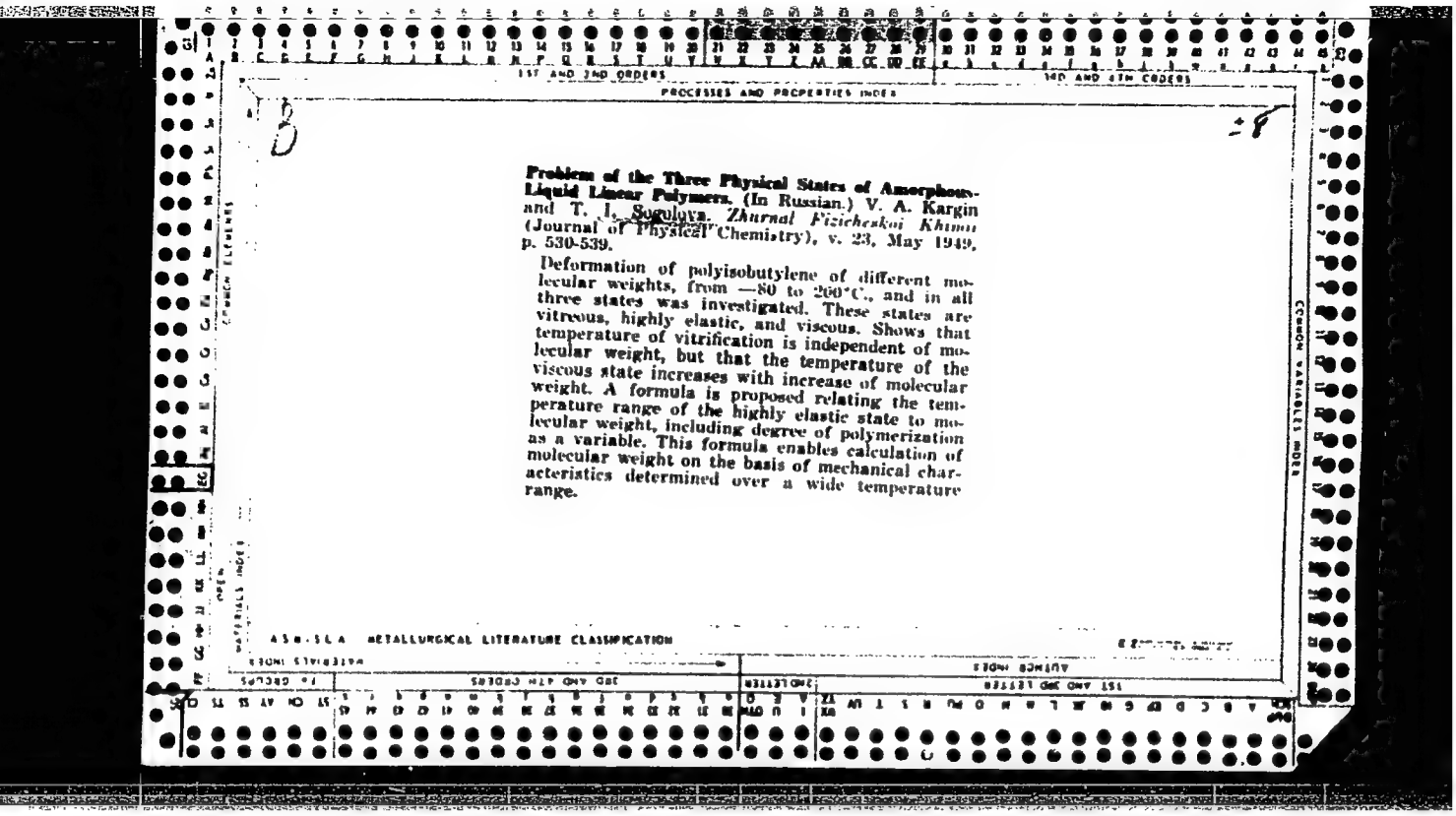
Card 3/3

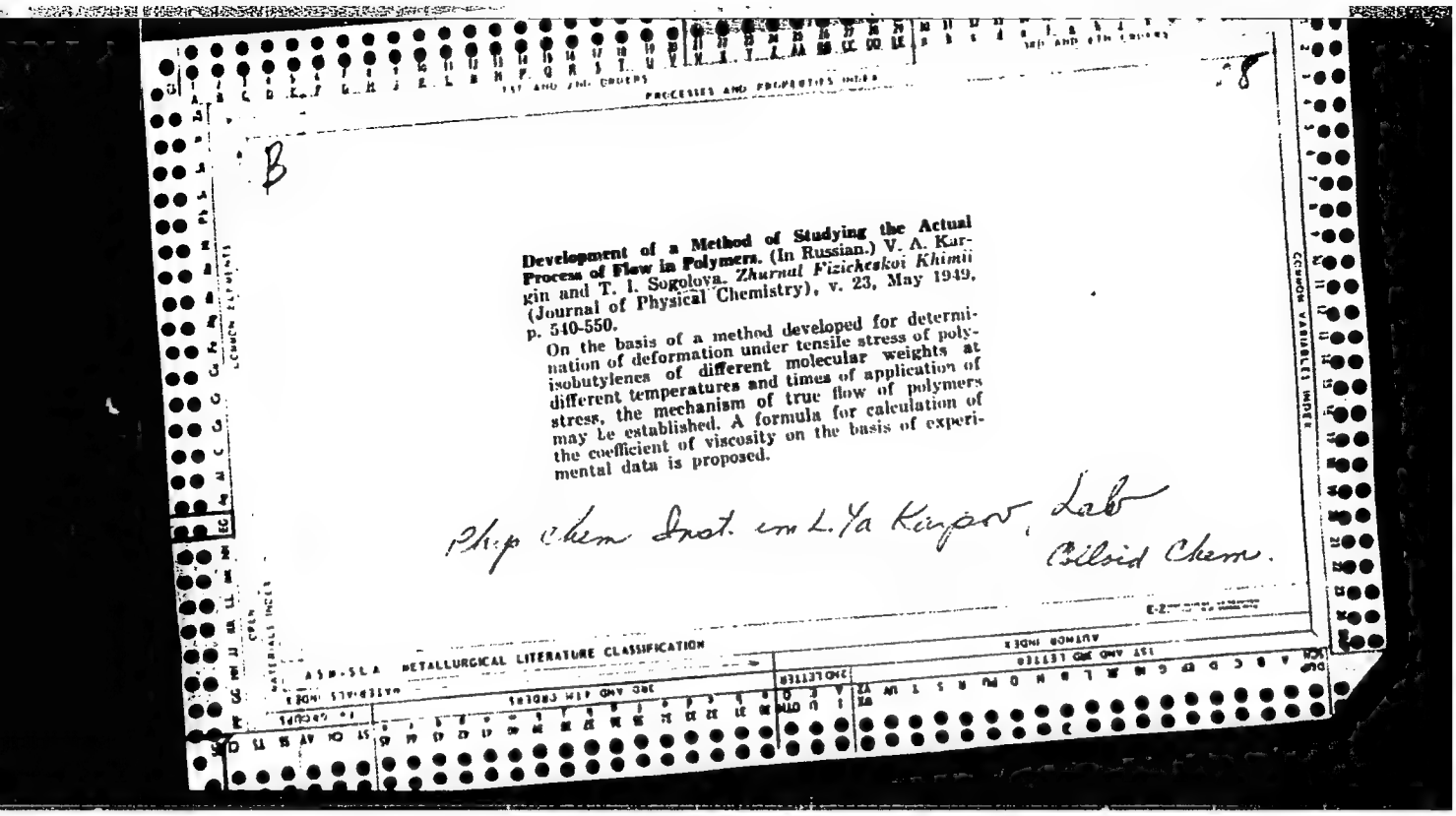


PROCESSES AND PROPERTIES INDEX

Problem of the Three Physical States of Amorphous-Liquid Linear Polymers. (In Russian.) V. A. Kargin and T. I. Sogulova. *Zhurnal Fizicheskoi Khimii* (Journal of Physical Chemistry), v. 23, May 1949, p. 530-539.

Deformation of polyisobutylene of different molecular weights, from —80 to 200°C., and in all three states was investigated. These states are vitreous, highly elastic, and viscous. Shows that temperature of vitrification is independent of molecular weight, but that the temperature of the viscous state increases with increase of molecular weight. A formula is proposed relating the temperature range of the highly elastic state to molecular weight, including degree of polymerization as a variable. This formula enables calculation of molecular weight on the basis of mechanical characteristics determined over a wide temperature range.

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



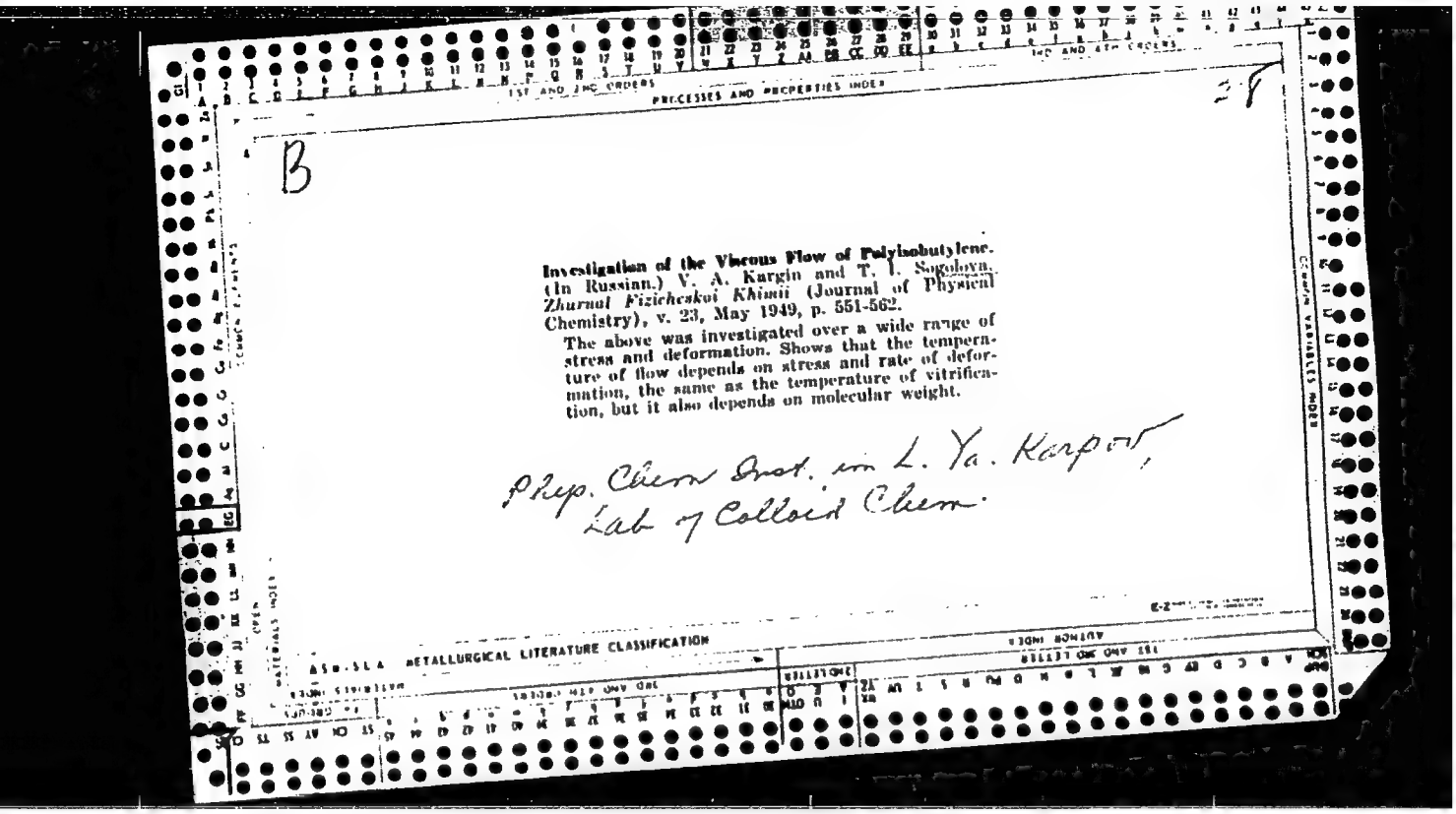
B

Development of a Method of Studying the Actual Process of Flow in Polymers. (In Russian.) V. A. Karkin and T. I. Sogolova. *Zhurnal Fizicheskoi Khimii* (Journal of Physical Chemistry), v. 23, May 1949, p. 540-550.

On the basis of a method developed for determination of deformation under tensile stress of polyisobutylenes of different molecular weights at different temperatures and times of application of stress, the mechanism of true flow of polymers may be established. A formula for calculation of the coefficient of viscosity on the basis of experimental data is proposed.

Phys Chem Inst. im L. Ya Karpov, Lab Colloid Chem.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



B

PROCESSES AND PROPERTIES INDEX

2F

Investigation of the Viscous Flow of Polyisobutylene. (In Russian.) V. A. Kargin and T. I. Sogolova. *Zhurnal Fizicheskoi Khimii* (Journal of Physical Chemistry), v. 23, May 1949, p. 551-562.

The above was investigated over a wide range of stress and deformation. Shows that the temperature of flow depends on stress and rate of deformation, the same as the temperature of vitrification, but it also depends on molecular weight.

Phys. Chem Inst. im L. Ya. Karpov,
Lab of Colloid Chem.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

USSR.

The mechanical properties of crystalline polymers. I. Polyamides. V. A. Kargin and T. I. Sogolova (L. Ya. Karpov Phys.-Chem. Inst., Moscow). Zhur. Fiz. Khim. 27, 1039-49(1953).—In cryst. polyamides, the curve of stress vs. elongation shows that upon stretching the polymer properties change discontinuously with a simultaneous change in the orientation of the microcrystals. The re-orientation of the crystals is discussed. The high m.p. of the polyamides is attributed to the interaction of the peptide

J. Rovtar Leach

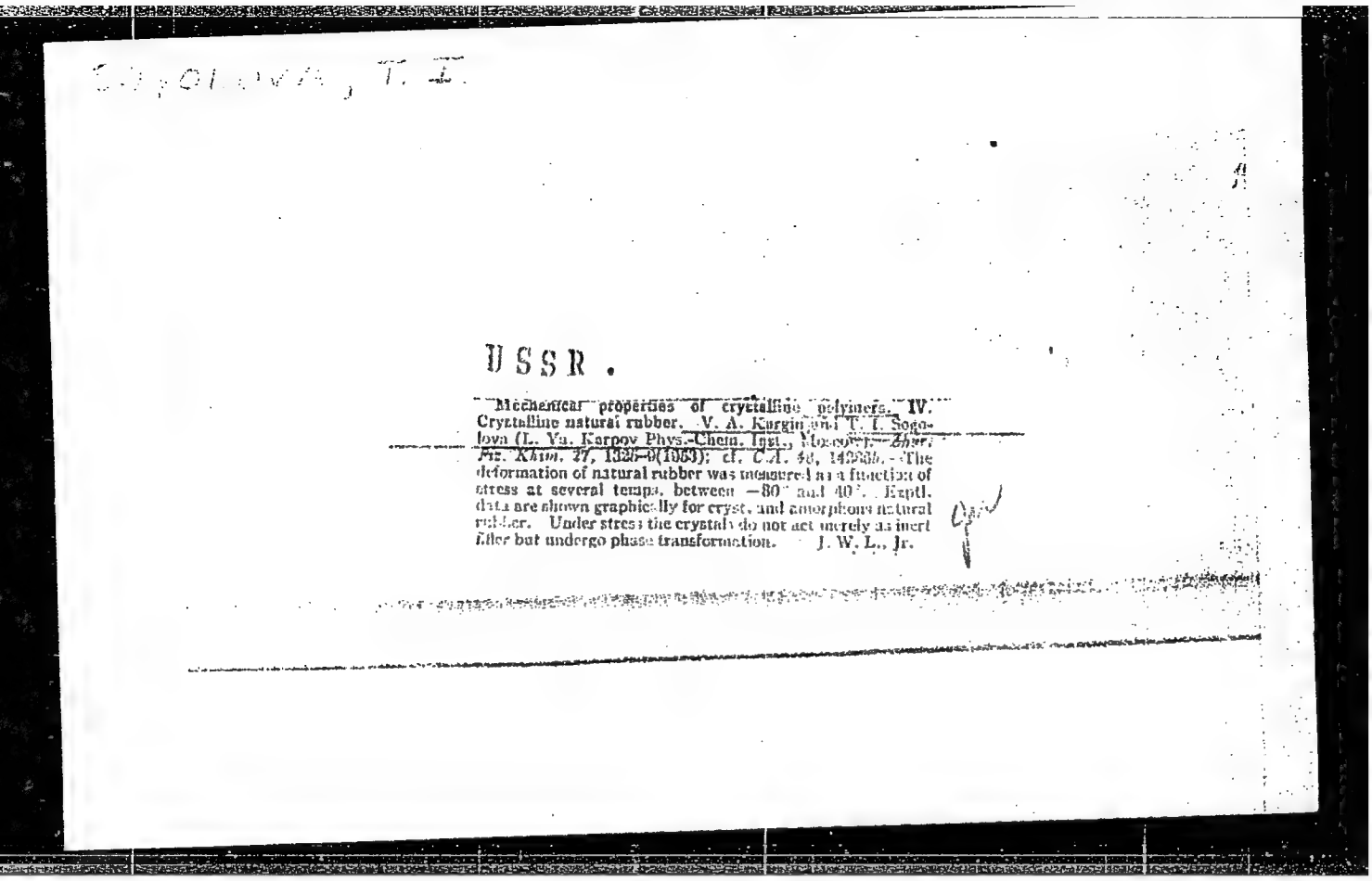
SOGOLOVA, T. I.

Mechanical properties of crystalline polymers. II. The polyethylenes. V. A. Kargin and T. I. Sogolova (L. Ya. Karpov Phys. Chem. Inst., Moscow). *Zhur. Fiz. Khim.* 27, 1208–12(1953); cf. *ibid.* 1039.—The curve of tensile strength *vs.* elongation is that which is characteristic for cryst. polymers. It consists of 3 straight-line segments. The properties of polyethylene upon stretching change discontinuously with a simultaneous, abrupt change in the orientation. These changes occur only at a given tension, and they do not occur throughout the entire sample but in a small portion of it (a collar) which during the stretching encompasses the entire mass of the sample. The study of the change in the mech. properties of polyethylene over a broad temp. range shows that at tensions below the crit. tension (i.e. lower than the tension required to form the collar) its deformation does not exceed 100%. At tensions equal to the crit. value (equal to the recrystn. tension) the deformation can be 300%. Therefore, for a small change in pressure, upon attaining the recryst. tension, there is a significant increase in the deformation of the sample at a const. pressure. This is a specific characteristic of cryst. polymers. At temp. 20° the deformation mechanism of polyethylenes is the same as that of the polyamides. The process of converting the isotropic polyethylene into the anisotropic form by stretching takes place through an intermediate phase transition from a disordered to an ordered orientation of the crystals by a rearrangement of the cryst. lattice. Above 20°, the polyethylenes are in the amorphous phase, and upon applying external force, the sample is deformed as a whole. At first the amorphous phase is oriented, and then the reorientation of the cryst. phase occurs. The conclusion is drawn that the recrystn. tension can be a characteristic of the stability of the polymer cryst. lattice. The data obtained show that the mech. properties and the mol. structure of polyethylene depend upon temp. III. Copolymers of chlorovinyl with chlorovinylidene and gutta-percha. *Ibid.* 1213–16.—The copolymer and gutta-percha follow the same laws previously observed. Recrystn. occurs in all of these cryst. polymers upon the application of an external force. This transition occurs discontinuously and 2 parts appear in the sample, each having its own mech. properties. Each cryst. polymer has a fixed temp. below which the breakdown of the sample occurs before the recrystn. process starts. This temp. is a limit at which the complex of mech. properties described above does not occur. J. Rovtar Leach

KARGIN, V.A.; SOGOLOVA, T.I.

Investigation of mechanical properties of crystalline polymers. Part 3. Copolymers of chlorovinyl with chlorovinylidene and gutta-percha. Zhur.fiz. khim. 27 no.8:1213-1216 Ag '53. (MLRA 6:11)

1. Fiziko-khimicheskiy institut im. L.Ya.Karpova, Moskva.
(Vinyl compounds) (Polymers and polymerization) (Gutta-percha)



Sogolova, T. I.

USSR.

Mechanical properties of crystalline polymers. IV. Crystalline natural rubber. V. A. Kargin and T. I. Sogolova (L. Ya. Karpov Phys.-Chem. Inst., Moscow). *Zhur. Fiz. Khim.* 27, 1325–9(1953); cf. *C.A.* 48, 14933b.—The deformation of natural rubber was measured as a function of stress at several temps. between −80° and 40°. Exptl. data are shown graphically for cryst. and amorphous natural rubber. Under stress the crystals do not act merely as inert filler but undergo phase transformation. J. W. L., Jr.

SOGOLOVA, T. I.

Rubber Abstracts
March 1954
Synthetic Rubber
and Like Products

1808. Deformation of crystalline polymers in a wide temperature range. V. A. KARGIN and T. I. SOGOLOVA. *Doklady Akad. Nauk U.S.S.R.*, 1953, 88, 867–70; *Chem. Abs.*, 1953, 47, 11888. Crystalline polymers like polyamides and polyethylene show three stages of behaviour when exposed to stress. Initially the strain increases, then follows a plateau of constant strain where the deformation increases a few hundred-fold (200-300%), and finally another increase takes place. During the second stage the sample becomes anisotropic and oriented; it shrinks in cross-section (neck-down). The strain level of the plateau is temperature dependent, its extent temperature independent. Stretch in two directions produces orientation along both. The transitions are very sharp for polyamides owing to the strong polar forces. Polyethylene curves show much more gradual transitions owing to weak interchain forces, especially at higher temperatures where the polymer appears to be more amorphous. 3S2D24.3423

NF 9-17-54

USSR/Chemical Technology - Chemical Products and Their Application. Lacquers. Paints. Drying Oils. Siccatives, I-22

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63304

Abstract: evaporation of solvents or occurrence of chemical reactions, and also at high temperatures of film formation with different coefficients of linear expansion of film and support. A method has been worked out for evaluating stresses from the curvature radius of metallic support.

Card 2/2

Sogolova T.I

USSR/Chemistry - Surface coatings FD-3359

Card 1/1 Pub. 50 - 3/20

Authors : Kargin, V. A., Academician; Sogolova, T. I., Cand Chem Sci; Karyakina, M. I.

Title : The development of strains during the formation of lacquer and varnish films

Periodical : Khim. prom. No 7, 392-397, Oct-Nov 1955.

Abstract : Developed new methods for determining strains in lacquer and varnish films: the strain is measured directly on paper strips after the coating has been applied or by determining the curvature of a thin metal plate. Found that the strain does not depend on the chemical nature of the coating or the chemical processes which take place during drying. On the other hand, the temperature has a strong effect. The mechanism of the formation of strains is interpreted on the basis of the experimental data found. Sixteen references; 8 USSR, 7 since 1940.

Institution : --

Submitted : --

KARGIN, V.A.; SOGOLOVA, T.I.

Effect of the molecular weight on mechanical properties of crystalline polymers. Zhur.fiz.khim. 29 no.3:469-475 Mr '55. (MLRA 8:7)

1. Fiziko-khimicheskiy institut imeni L.Ya.Karpova, Moscow. (Molecular weights) (Polymers and polymerization)